Government
Business
Council

PLAYBOOK

MAKING THE MOVE TO 5G:

A Government-Wide Study of 5G
Implementation and Readiness

Underwritten by:

verizon✓

5G FOR GOVERNMENT

With better capacity, lower latency, massive device connectivity, and a richer suite of security features, the fifth generation (5G) of wireless technology will revolutionize how federal, state, and local governments operate. 5G offers the opportunity to transform government operations by providing access to unprecedented levels of real-time information for field workers such as first responders, food and agricultural inspectors, law enforcement, and military personnel.[1] Moreover, 5G is a catalyst for innovation. IT modernization programs centered on mobility, artificial intelligence (AI), and cloud computing could easily benefit from a 5G communications backbone.[2]

Given the importance of 5G for the future of government, this survey was created to better understand the following:

- the current state of 5G across federal, state and local government agencies
- how important 5G is to an agency's mission
- expected timeframe of 5G implementation
- the perceived challenges associated with 5G implementation
- what attributes are most important when partnering with 5G carriers

"[5G] will allow greater speeds and larger pipelines of information flow. It will allow much quicker transmissions, a lower latency which will enable things like autonomous vehicles, and it also allows for many, many millions of end-user devices to be connected at any one time."

Robert Blair, Director of Policy and Strategic Planning, Office of the Secretary, U.S. Department of Commerce; Former U.S. Special Representative for International Telecommunications Policy[3]

METHODOLOGY

In partnership with Verizon, the Government Business Council (GBC) - the research division of GovExec – fielded this survey to its database of Government Executive, Defense One, Nextgov, and Route Fifty subscribers between December 2021 and January 2022. The pool of 300 respondents represents a variety of leadership roles across federal, state, and local governments, as well as the Department of Defense. Roughly half of federal and military respondents (48%) are GS/GM-13 and above, and 81% of state and local government respondents are managers or appointed officials, suggesting strong high-level participation. For more information on respondents, visit the Respondent Profile section.

FAST FACTS

1-4 MILLISECONDS

The expected latency of 5G.[4]

10,000 MEGABITS PER SECOND

The download speed of 5G is 100 times faster than 4G.[5]

1 MILLION

Devices per km2 supported by 5G.[6]

PLAYBOOK OVERVIEW

When implementing a 5G network, we suggest that federal, state, and local government agencies adhere to the following playbook:

PLAY 1: UNDERSTAND THE BENEFITS AND CHALLENGES OF 5G

40% of respondents surveyed indicate that they do not understand the benefits of 5G, yet 62% say 5G is or could be helpful to their agency's mission. Communicating the benefits of 5G while also being cognizant of potential challenges to its implementation is a critical first step.

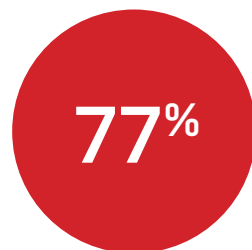## PLAY 2: DEVELOP AN IMPLEMENTATION TIMELINE

Just 1% of respondents say their agency has completed 5G implementation and 83% say that implementation will take at least 1 year. Developing an implementation plan with an accurate timeline is an essential next step.
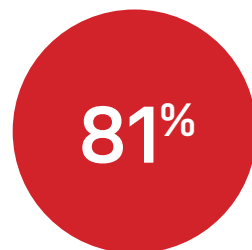
PLAY 3: EVALUATE AND SELECT A PARTNER

Choosing the right carrier partner is perhaps the most critical step in 5G implementation. "Network reliability" was selected most often by respondents as the most important attribute when assessing 5G carrier partners. In addition, many respondents note that education and technical expertise are critical to helping agencies in 5G planning.
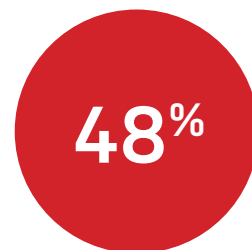
RESPONDENT PROFILE

This study was limited to respondents within state, local, and federal government, including the Department of Defense.

77%

A combined 77% of respondents work in the federal government. The 1% of active-duty military personnel consists of military officers.
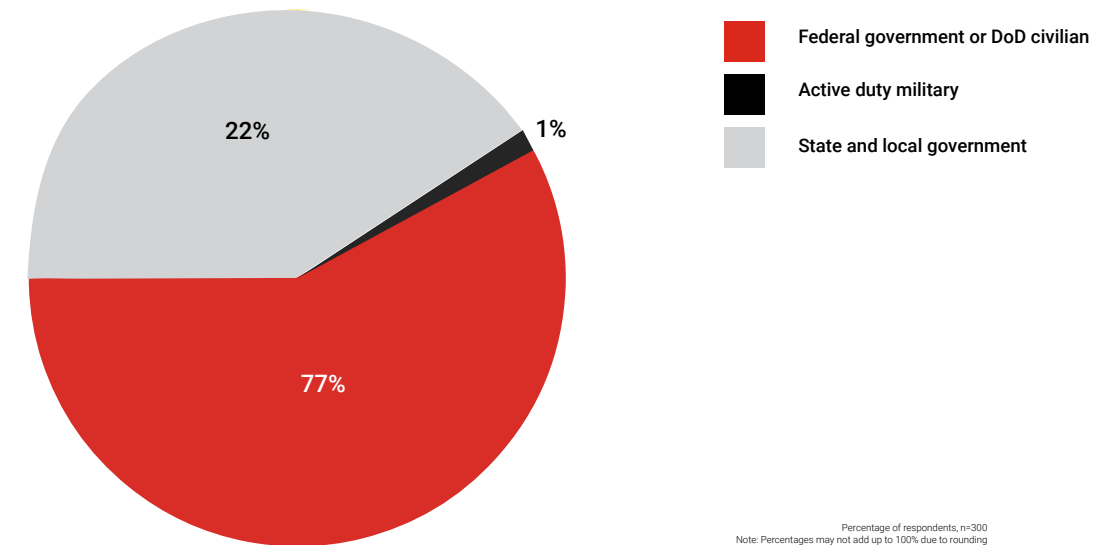
81%

A combined 81% of state and local government respondents are managers or elected/appointed officials.

48%

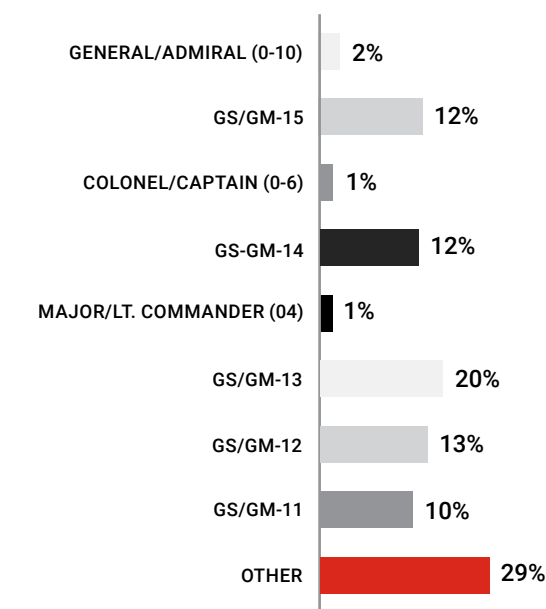Nearly half of all federal and military respondents (48%) are GS/GM-13 or above.

This study was limited to respondents within state, local, and federal government, including the Department of Defense.

Which best describes your employment situation?

- 77% (red) — Federal government or DoD civilian
- 1% (black) — Active duty military
- 22% (grey) — State and local government

Percentage of respondents, n=300
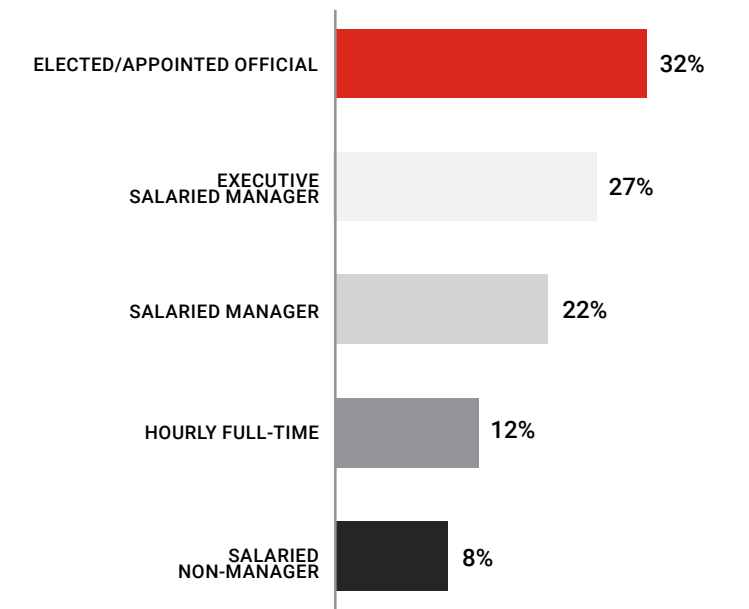Note: Percentages may not add up to 100% due to rounding

Military personnel and federal employees were asked to indicate their job grade or rank, while state and local respondents were asked to identify their role.

Please indicate your job grade/rank. (Federal government and military respondents only.)

Grade/Rank	Percentage
GENERAL/ADMIRAL (0-10)	2%
GS/GM-15	12%
COLONEL/CAPTAIN (0-6)	1%
GS-GM-14	12%
MAJOR/LT. COMMANDER (04)	1%
GS/GM-13	20%
GS/GM-12	13%
GS/GM-11	10%
OTHER	29%

Percentage of respondents, n=215
Note: Percentages may not add up to 100% due to rounding

Which of the following best describes your role within your organization? (State & local respondents only.)

Role	Percentage
ELECTED/APPOINTED OFFICIAL	32%
EXECUTIVE SALARIED MANAGER	27%
SALARIED MANAGER	22%
HOURLY FULL-TIME	12%
SALARIED NON-MANAGER	8%

Percentage of respondents, n=60
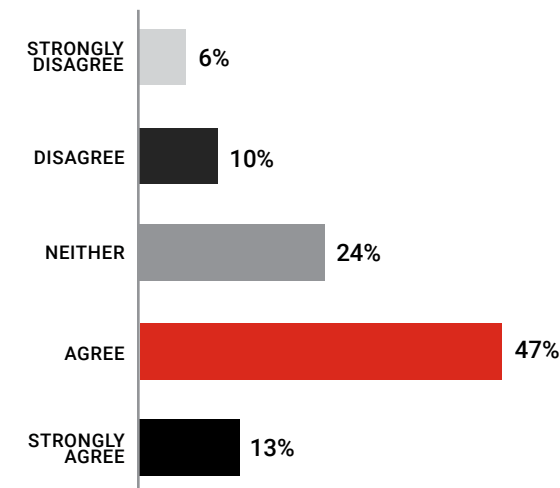Note: Percentages may not add up to 100% due to rounding

PLAY ONE

Understand the benefits and challenges of 5G

This survey shows that most respondents understand the benefits of 5G and believe that it is or could be helpful to their agency's mission. Understanding the benefits of 5G and being aware of the potential challenges that come with it are essential to leveraging all that 5G can offer federal, state, and local government agencies.

GBC DATA

To what extent do you agree or disagree with the following statements:

I understand the benefits of 5G.

STRONGLY DISAGREE	6%
DISAGREE	10%
NEITHER	24%
AGREE	47%
STRONGLY AGREE	13%

Percentage of respondents, n=298
Note: Percentages may not add up to 100% due to rounding

5G is/could be helpful to my agency's mission.

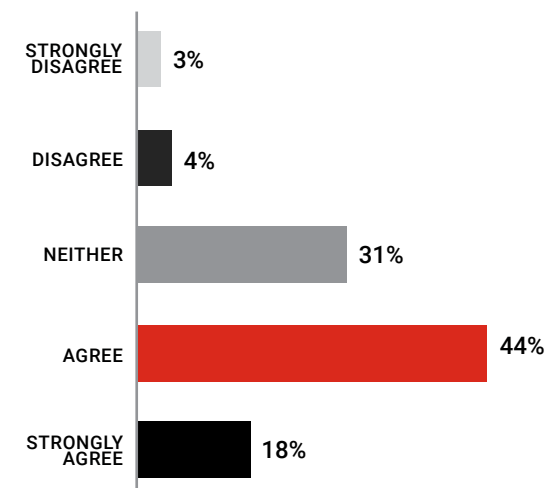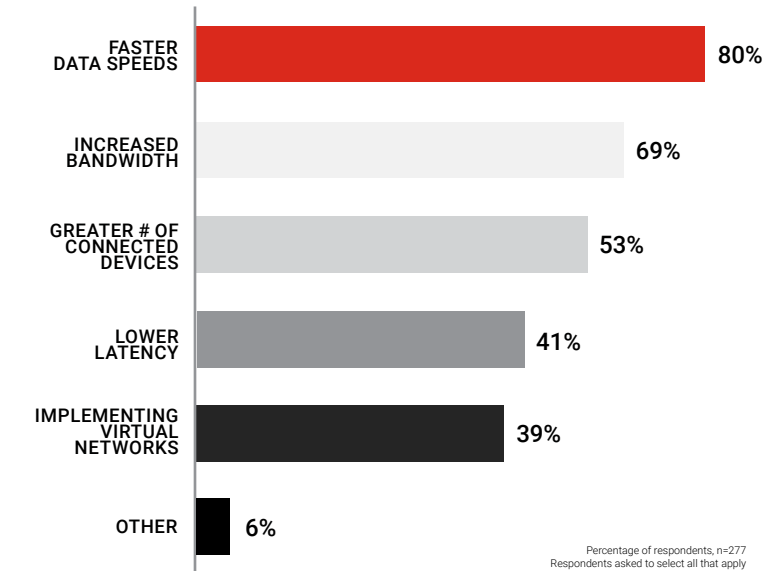|	
STRONGLY DISAGREE	3%
DISAGREE	4%
NEITHER	31%
AGREE	44%
STRONGLY AGREE	18%

Percentage of respondents, n=296
Note: Percentages may not add up to 100% due to rounding

60% Most respondents (60%) either agree or strongly agree that they understand the benefits of 5G. In contrast, just 16% either disagree or strongly disagree.

62% The majority of respondents (62%) either agree or strongly agree that 5G is/could be helpful to their agency's mission. In contrast, just 7% either disagree or strongly disagree with this sentiment.

Research shows that 5G offers a variety of benefits including, faster speeds, lower latency, greater connectivity, and increased bandwidth. Respondents were asked which benefits would be most useful and were allowed to provide other options not listed. "Faster data speeds" was selected most often by respondents as the most useful benefit of 5G for their agency.

Which of the following 5G benefits do you think would be useful to your agency?

FASTER DATA SPEEDS	80%
INCREASED BANDWIDTH	69%
GREATER # OF CONNECTED DEVICES	53%
LOWER LATENCY	41%
IMPLEMENTING VIRTUAL NETWORKS	39%
OTHER	6%

Percentage of respondents, n=277
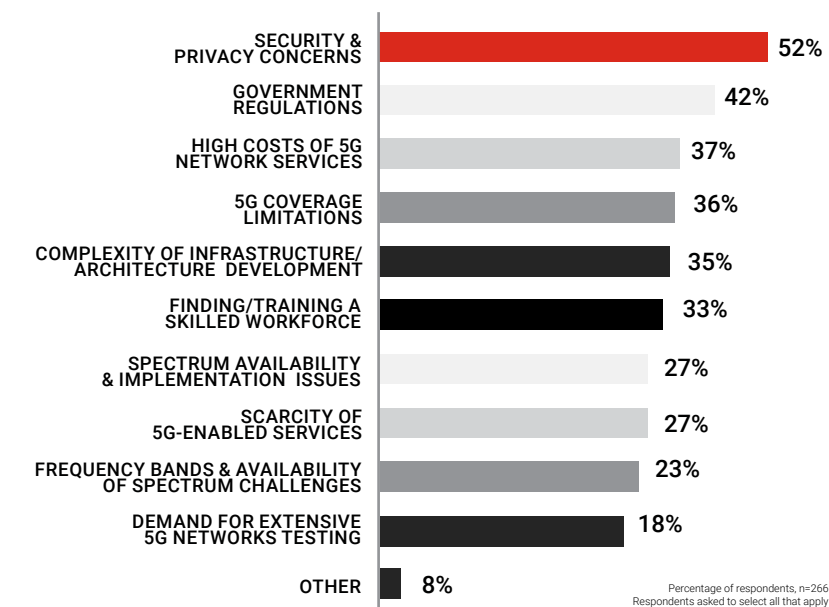Respondents asked to select all that apply

"Other" responses include:
- "Allows strong data security protocols"
- "Continuity of operations"
- "Functional overseas sites"
- "Greater integration"
- "Increased work efficiency, cost optimization, effectiveness, etc."
- "Multi-antenna connect"
- "Security"

20x 5G is expected to reach speeds that are 20 times faster than 4G LTE.[7]

Not everyone is convinced that 5G will be as groundbreaking as experts say and the process of implementing 5G is not without its challenges. We asked respondents to select which challenges they expect to see when implementing 5G and provide others not listed. "Security and privacy concerns" are the most anticipated challenges of 5G implementation.

What challenges do you foresee in implementing 5G at your agency?

SECURITY & PRIVACY CONCERNS	52%
GOVERNMENT REGULATIONS	42%
HIGH COSTS OF 5G NETWORK SERVICES	37%
5G COVERAGE LIMITATIONS	36%
COMPLEXITY OF INFRASTRUCTURE/ ARCHITECTURE DEVELOPMENT	35%
FINDING/TRAINING A SKILLED WORKFORCE	33%
SPECTRUM AVAILABILITY & IMPLEMENTATION ISSUES	27%
SCARCITY OF 5G-ENABLED SERVICES	27%
FREQUENCY BANDS & AVAILABILITY OF SPECTRUM CHALLENGES	23%
DEMAND FOR EXTENSIVE 5G NETWORKS TESTING	18%
OTHER	8%

Percentage of respondents, n=266
Respondents asked to select all that apply

"Other" responses include:
- "Availability"
- "Budgetary constraints"
- "Interference with aircraft information services"
- "Safety concerns"
- "Understanding costs/benefits clearly"

52% Only one of the options listed (Security and privacy concerns) was selected by over half of respondents (52%). All other choices were selected by less than half of respondents.
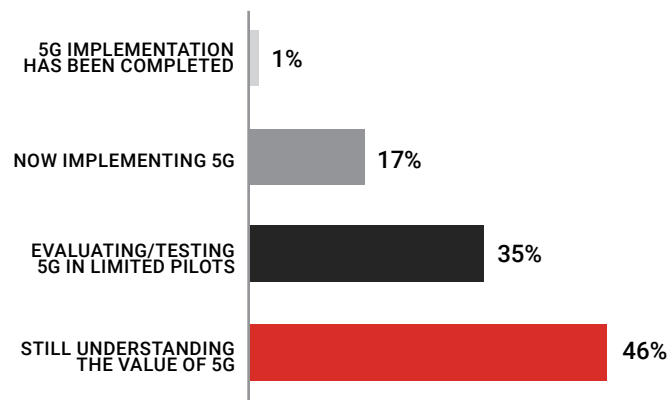
PLAY TWO

Develop an implementation timeline

The next step is having a plan of when and how to implement 5G. Our survey results show most agencies are still implementing 5G and will do so for 1-2+ years. Just 1% of respondents say their agency has completed 5G implementation.
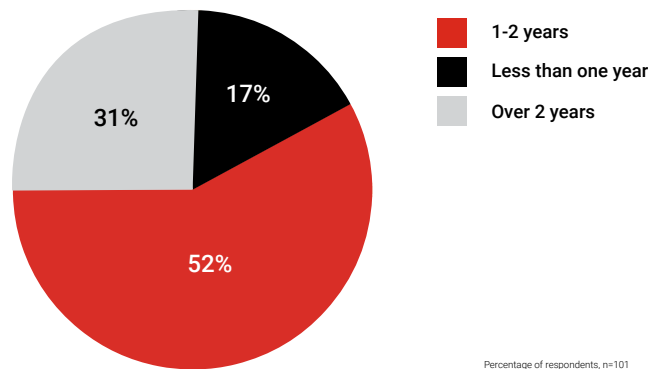
GBC DATA

How would you describe the status of your agency's 5G journey?

- 5G IMPLEMENTATION HAS BEEN COMPLETED — 1%
- NOW IMPLEMENTING 5G — 17%
- EVALUATING/TESTING 5G IN LIMITED PILOTS — 35%
- STILL UNDERSTANDING THE VALUE OF 5G — 46%

Percentage of respondents, n=164
Note: Percentages may not add up to 100% due to rounding

What timeframe do you expect your agency to begin implementing 5G?

- 1-2 years
- Less than one year
- Over 2 years

31%
17%
52%

Percentage of respondents, n=101
Note: Percentages may not add up to 100% due to rounding

52% While most respondents (46%) say their organization is still understanding the value of 5G, a combined 52% say their organization is evaluating, testing, or implementing 5G.

52% Of the respondent's whose agencies have not already implemented 5G, most (52%) expect implementation within 1-2 years.
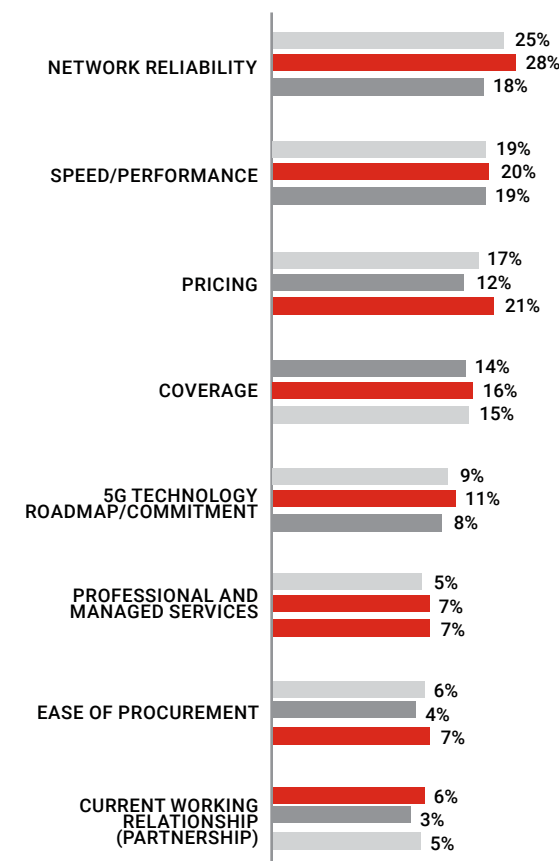
PLAY THREE

Evaluate and select a partner

We asked respondent to rank which attributes are most important when selecting a 5G carrier partner. Results show "Network reliability" is the most important attribute according to respondents.
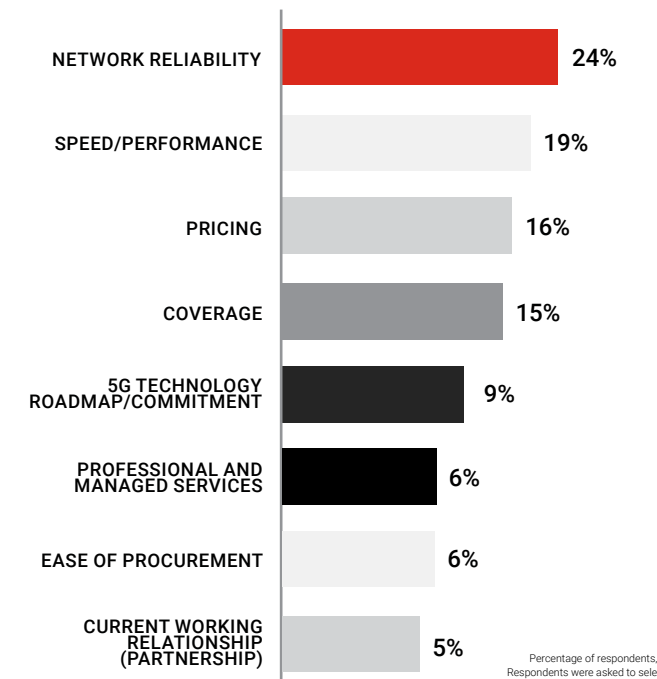
GBC DATA

When assessing 5G carrier partners, what attributes are most important?

- NETWORK RELIABILITY — 25% / 28% / 18%
- SPEED/PERFORMANCE — 19% / 20% / 19%
- PRICING — 17% / 12% / 21%
- COVERAGE — 14% / 16% / 15%
- 5G TECHNOLOGY ROADMAP/COMMITMENT — 9% / 11% / 8%
- PROFESSIONAL AND MANAGED SERVICES — 5% / 7% / 7%
- EASE OF PROCUREMENT — 6% / 4% / 7%
- CURRENT WORKING RELATIONSHIP (PARTNERSHIP) — 6% / 3% / 5%

1st / 2nd / 3rd

Percentage of respondents, n=240
Respondents were asked to select their
1st 2nd and 3rd choices.

Total Top 3 Mentions

- NETWORK RELIABILITY — 24%
- SPEED/PERFORMANCE — 19%
- PRICING — 16%
- COVERAGE — 15%
- 5G TECHNOLOGY ROADMAP/COMMITMENT — 9%
- PROFESSIONAL AND MANAGED SERVICES — 6%
- EASE OF PROCUREMENT — 6%
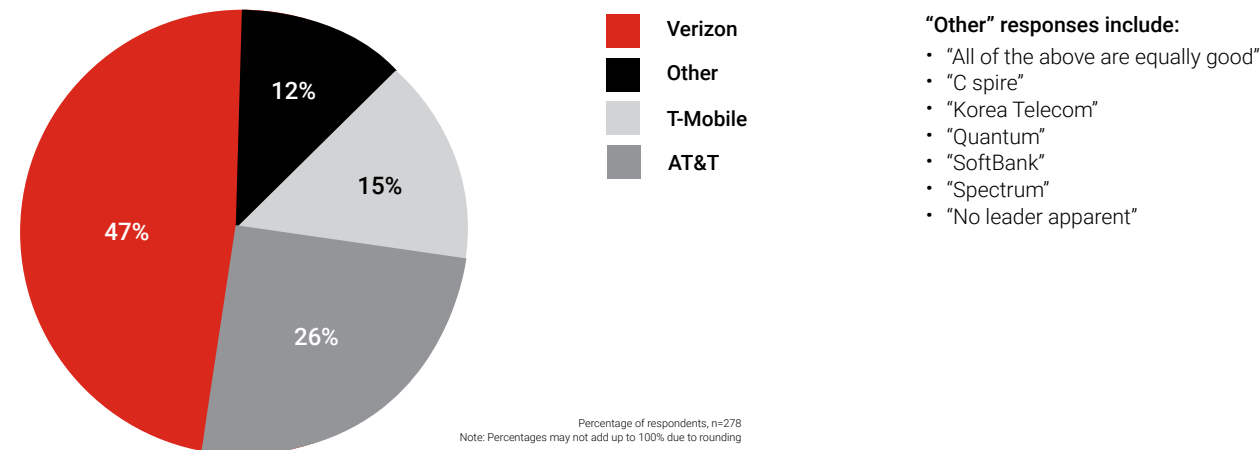- CURRENT WORKING RELATIONSHIP (PARTNERSHIP) — 5%

Percentage of respondents, n=240
Respondents were asked to select their
1st 2nd and 3rd choices.

24% Nearly 1 in 4 respondents selected "Network reliability" as a top 3 most important attribute for 5G carriers. "Speed/performance" was most commonly seen as the second-most important attribute.

Evaluating and selecting a partner that understands 5G and the complex implementation process is perhaps the most critical step in the process. We asked survey respondents which carrier they see as the industry leader when considering 5G in federal, state, and local government. Nearly half of respondents (47%) selected Verizon.

When considering 5G in federal, state, and local government, which carrier do you see as the leader?

Legend:
- ■ Verizon
- ■ Other
- ■ T-Mobile
- ■ AT&T

Pie chart values: 47%, 12%, 15%, 26%

"Other" responses include:
- "All of the above are equally good"
- "C spire"
- "Korea Telecom"
- "Quantum"
- "SoftBank"
- "Spectrum"
- "No leader apparent"

Percentage of respondents, n=278
Note: Percentages may not add up to 100% due to rounding

INDUSTRY PERSPECTIVE

What makes 5G networks so special compared to previous cellular networks? 5G will turn traditional processes into smart automated instances. As we look to automate processes with high bandwidth, low latency applications, we will exponentially increase the number of mission-critical instances in this system of systems. There are eight performance attributes, or currencies, to be considered when evaluating whether a 5G network can deliver on its full potential – Throughput, Data Volume, Mobility, Connected Devices, Energy Efficiency, Service Deployment, Reliability, Latency. Without all eight of these currencies, you don't have a true 5G network. With them, you have a powerful, game-changing platform for innovation. And that's what Verizon built. With Verizon 5G Ultra, you'll be ready. Ready to connect. Ready to innovate. Ready to grow. Ready for what's next.

"What is the general-purpose technology of this new Industrial Revolution? It's the 5G network. In an era that's all about fast, clear connections—between people and people, between people and devices, and between devices and devices— the connective network is the universal enabler, the essential platform."

Hans Vestberg, CEO, Verizon Communications

COMMENTARY FROM SURVEY RESPONDENTS:

Lastly, we asked respondents how 5G carriers can help their agency most in planning for 5G. Many respondents noted that 5G carriers can help most by assisting with planning, education, and technical expertise.

"Educating decision makers on the benefits of 5G and providing plans and rough order of magnitude costs."

"Education, technical expertise of current system structure and how to migrate to 5G"

"Education; Explain integration with current equipment to allow planning; must be able to access remote location."

"Better plans for customer support during implementation and ongoing problem resolutions"

"By coming up with ways broad 5G coverage is lacking in rural areas"

"Expand coverage and plan/educate how to integrate latest technology to enhance defense capability."

"Improvement of E-learning capabilities for the rural communities through cost-effective, always-available networks."

"Provide training, technical roadmaps and availability schedule"

"Providing cost estimates, education and planning for extent of coverage and implementation"

FINAL CONSIDERATIONS

5G IS VALUED BUT IMPLEMENTATION LAGS

The results of this survey illustrate that many working in federal, state, and local government are unaware of or are unfamiliar with the benefits of 5G technology. However, most respondents think that 5G is or would be helpful for their agency. Despite this, results also show that very few agencies have completed their 5G transition. In fact, most respondents say their agency is still understanding the value of 5G.

RELIABILITY, SPEED, AND COST ARE CRITICAL

This survey shows that when choosing a 5G carrier partner, special attention should be given to a few key attributes: 1) Network reliability, 2) speed/performance, and 3) pricing/cost. According to respondents, faster speed is the most important benefit of 5G and is also the second-most important value when selecting a 5G carrier partner. Respondents also emphasized the importance of technical expertise and network security.

Endnotes

1   https://www2.deloitte.com/us/en/insights/industry/public-sector/future-of-5g-government.html
2   https://www.nextgov.com/ideas/2019/06/what-would-5g-technology-mean-government/158014/
3   https://www.cfr.org/event/state-us-5g
4   https://www.vxchnge.com/blog/5g-statistics
5   https://www.thalesgroup.com/en/worldwide-digital-identity-and-security/mobile/magazine/
     5g-vs-4g-whats-difference
6   https://www.thalesgroup.com/en/worldwide-digital-identity-and-security/mobile/magazine/
     5g-vs-4g-whats-difference
7   https://www.iselect.com.au/internet/5g-australia/5g-vs-4g/

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Report Author: David Hutchins

Contact

Jonathan Sanders
Research Director,
Government Business Council,
GovExec
jsanders@govexec.com

govexec.com/insights
@GovExecInsights

About Verizon

Verizon Communications Inc. was formed on June 30, 2000, and recently celebrated its 20th year as one of the world's leading providers of technology, communications, information and entertainment products and services. The company offers voice, data and video services and solutions on its award-winning networks and platforms, delivering on customers' demand for mobility, reliable network connectivity, security and control.

Learn more at: https://www.verizon.com

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